

**UNCLASSIFIED**

---

**AD 295 449**

---

*Reproduced  
by the*

**ARMED SERVICES TECHNICAL INFORMATION AGENCY  
ARLINGTON HALL STATION  
ARLINGTON 12, VIRGINIA**



---

**UNCLASSIFIED**

NOTICE: When government or other drawings, specifications or other data are used for any purpose other than in connection with a definitely related government procurement operation, the U. S. Government thereby incurs no responsibility, nor any obligation whatsoever; and the fact that the Government may have formulated, furnished, or in any way supplied the said drawings, specifications, or other data is not to be regarded by implication or otherwise as in any manner licensing the holder or any other person or corporation, or conveying any rights or permission to manufacture, use or sell any patented invention that may in any way be related thereto.

AD No. 295 449

A DIRECT CURRENT TRANSFORMER

By

L. F. Sobeshchanskiy, M. V. Vlasov, et. al.



295449

# UNEDITED ROUGH DRAFT TRANSLATION

A DIRECT CURRENT TRANSFORMER

BY: L. F. Sobeshchanskiy, M. V. Vlasov, et. al.

English Pages: 4

SOURCE: Soviet Patent Nr. 129677 (640031/24),  
30 Sep. 59.

SOV/19-60-0-13-123/200

THIS TRANSLATION IS A RENDITION OF THE ORIGINAL FOREIGN TEXT WITHOUT ANY ANALYTICAL OR EDITORIAL COMMENT. STATEMENTS OR THEORIES ADVOCATED OR IMPLIED ARE THOSE OF THE SOURCE AND DO NOT NECESSARILY REFLECT THE POSITION OR OPINION OF THE FOREIGN TECHNOLOGY DIVISION.

PREPARED BY:

TRANSLATION SERVICES BRANCH  
FOREIGN TECHNOLOGY DIVISION  
WP-AFB, OHIO.

FTD-TT- 62-117/1+2+4

Date 9 Jan. 1963

## A DIRECT CURRENT TRANSFORMER

L. F. Sobeshchanskiy, M. V. Vlasov, S. N. Shcherbinin,  
and L. E. Mozzhukhina

The proposed direct current transformer belongs to the semiconductor type containing a master oscillator and a power transformer to which the load is applied.

A feature of the transformer which is the subject of the invention is that in order to excite the given oscillator an auxiliary transformer with an inductive feedback, the primary winding of which is connected in parallel with the primary winding of the power transformer to two junction-type triodes mounted according to the schematic with a common control electrode, for example, the collector, is used.

The proposed construction of the transformer permits a reduction in the quantity of the semiconducting components and an increase in its efficiency.

The drawing shows the schematic of the proposed transformer which is a push-pull relaxation oscillator with power inductive feedback (a blocking oscillator) composed of the junction-type triodes  $JT_1$  and  $JT_2$  and the auxiliary transformer  $T_a$  with an inductive feedback. In parallel with the primary winding of this transformer is connected the

primary winding of the power transformer  $T_p$  with a rectifier or resistor as a load.

The use of this circuit enables us to obtain the necessary optimum transforming frequency, using in this process the same triodes as for the master oscillator and the power amplifier and not impairing the magnetic circuit by introducing an air gap.

The junction triodes  $JT_1$  and  $JT_2$  are connected to the auxiliary transformer  $T_a$  according to the schematic with a common emitter, base, or collector. Using the configuration with a common collector enables us to maintain the polarity in which the storage battery is connected with the vibrapack, i.e., to exclude the necessity of introducing any changes in the wiring of the vibrapack. When connecting the triodes according to the schematic with common emitters the efficiency of the transformer may be increased 3-4%, but for this, changes need to be made in the lay-out of the vibrapack.

#### Subject of the Invention

A direct current transformer with semiconductor components containing a master oscillator and power transformer, to the latter of which the load is applied, differing in this, that in order to simplify the transformer and increase its efficiency an auxiliary transformer with inductive feedback is used to excite the oscillator frequency; and the primary winding of this transformer is connected in parallel with the primary of the power transformer with two junction-type triodes mounted according to the schematic with a common control electrode, for example, the collector.

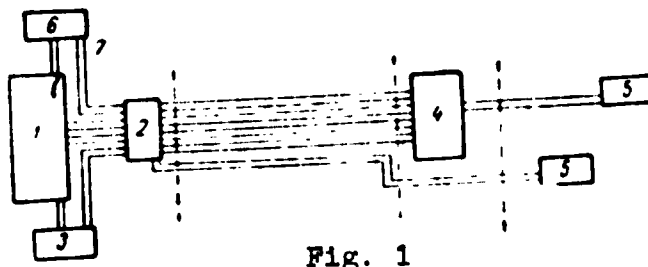


Fig. 1

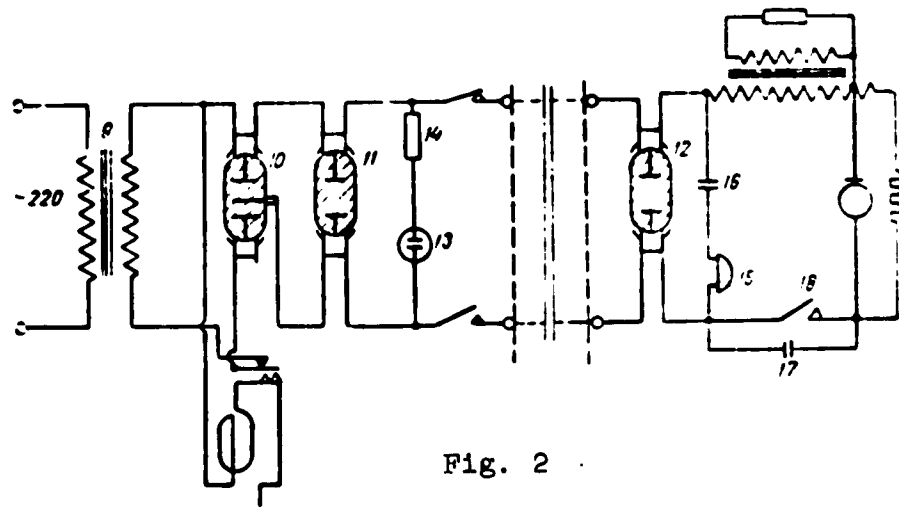


Fig. 2

# DISTRIBUTION LIST

DEPARTMENT OF DEFENSE	Nr. Copies	MAJOR AIR COMMANDS	Nr. Copies
		AFSC	
		SCFTR	1
HEADQUARTERS USAF		ASTIA	25
AFCIN-3D2	1	TD-B1a	5
ARL (ARB)	1	TD-B1b	3
OTHER AGENCIES			
CIA	1		
NSA	6		
AID	2		
OTS	2		
AEC	2		
PWS	1		
NASA	1		
RAND	1		